

Trip to Wyoming
1899
second board.

doc. 80

Property of Charles
Schuchert

U. S. National Museum
Washington, D. C.

77.24 100 100 100 100 100

19 oranges

24 tents

6 Cords

85' Directs, Prof. Knight, ^{other} students, and teamers,
of which there are about 19.

doc. 80

Como.

Anticline.

Red beds Triassic

Baktonodan beds marine Jurassic

Atlantosaurus beds fresh w. "

Great Dinosaur horizon. Look for
small mammals in "dirt beds."

Dakota sandstone. Plants fr. water.

Fossils 20m. east of Como station in cream
colored beds. Poor Lam.

Green River

Fossil beds 40m. W in R.R. cut. Also along
Pitts Creek.

Hampfork by John H. Haddenhurst.

Marine Jur. loc. of Knight.
Freezout Hills, Carbon Co. Wyo.

Collect ceph. fr Stanton from the
Benton of the Colorado.

Green River Station } Green River
Hamsfork " } loc.
from this place drive to Fossil.

Lebont's creek, Old Hayden loc.
Look for plants.

General section.

Archaean.

Paleozoic. Camb. & Carb.

Red beds Triassic

Marine Jurassic see Freezings Hills

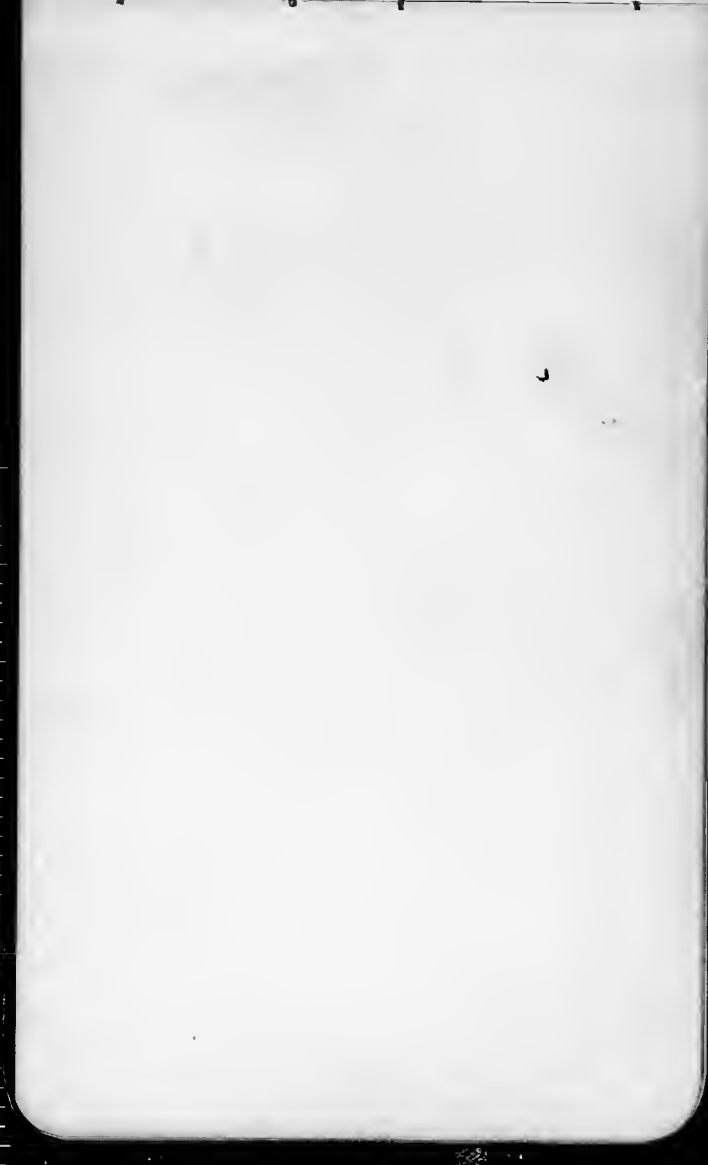
Fresh water Jurassic

Dakota fr. w. Plants. Geol.

Upper
Cret. {
Colorado { Miobrara, marine.
Benton, marine
see for cephalopods
Montana { Fort Pierre, marine
Fox Hills marine 7000
Laramie { 7000 { Upper Laramie } fresh w.
Denver } Anatis beds.

Eocene Green River

" Bridger not in Vert.





July 16 - 1899 Sunday
Left Washington 7.20 P.M.

July 17 Monday
Arrived in Pittsburgh 7 A.M.
Chicago 8.45 P.M.
Left " 10.30 P.M.

July 18 - Tuesday
on Chicago North Western R.R. to
Omaha. Arrived there at 7.00
P.M. Left 11.35 for Saranac

July 19 - Wednesday.
Arrived at Saranac at 10.30
Spent most of the day at the University and
later drove around a little with Rachel
Callahan & Moore. In the afternoon there
was a meeting of an association. ~~Prof.~~
Prof. ~~Callahan~~ ^{Callahan} was elected temporary
chairman and Prof. Barbour temp

of secretary. A committee was ^{appointed} ~~elect~~
by the Court to prepare a plan with the expectation
that the com. consisted of Hambach, Knight
Barbour, Knight and Schuchert. They
appointed the following officers who ~~elect~~
~~the~~ were elected by the assembly
on the 1st of January.

Director and President

Wm. Wilbur C. Knight.

Secretaries

Collins Cobb

Jan Norman

E. H. Barbour

Referee in Court Pol.

not present H. F. Osborne

Merriman

Ref in Court the

H. Hambach

C. Schuchert

Ref in Court the

Ref. for Petrography
A. D. Lawson
A. R. Crook

Ref. for General Geology
Fred. B. Peck
Broadhead.

Ref. for Physiography
George L. Collier

Ref. for Art and
Cameron
Photographers

R. Q. Meisenbach
H. G. Cornell

At the same time was a reception. The Pres. of the University spoke and a number of others. I attended the affair in the evening. Nearly all the prominent geologists spoke.

July 20 - Mon. 1900
Purchased a few things in the
morning and made up for the
trip.

Paid \$10.00 to the cabri-
let with an understanding that he will
rebathe if I do not take the entire
trip. Later in the day learned
that the start will be made
tomorrow morning.

July 21 - Tuesday. Camp I
After a great deal of talking the
excursion started at 10 o'clock. It is
very hot, keep himself with a great
deal of Chad management and
binder. Left three paid passengers
start.

In a good way we go north-

and go on the day before the start.

andward over the ~~by~~ Laramie plains
and the Big and Little Laramie rivers
to a place called St. James or, 7 miles
lake. Big. Smith lags behind and
no one knows the steep slope and
finally we go into camp without him.
After another scramble and a wait
for something to eat he turns up.

We came about 18 to 20 miles over
a rolling and generally very country. The
country is a desolate one, no farms are
probably a house every 5 miles. The plain
is a, sparsely grassy one, with cactus
and, here and there, juniper holes. At one
place 7 miles from Laramie there was
a river of quite ^{and, Stacburn lake} and a country.
The heat during the day was great and
heat waves very extensive accompanied
with considerable mirage effects.

At the lake had one of the party collected
Fort Pierre fossils and I collected some
Inoceramus from the top of the hills south

to the Fox Hills.

July 22 Saturday. Camp II.

Got up at 5 and had breakfast at 6. Started ^{from} "Alkali Camp" at 8. Drove 3 miles north of the way and arrived at Cohen's ^{about 11 miles from Alkali Camp} Camp at noon. Distance covered about 11 miles.

All the hills in this region are of Fox Hills formation and have been placed down a level with a layer of granite and with boulders of considerable size. In the Fox Hills we can down this boulder layer cover all the slopes. At first I thought the boulders had been deposited on the Fox Hills sandstone but further observation and comparison did not uphold this.

Today and also yesterday a several lakes (I guess) which appear like sinks

Prof Knight says that the Niobrara below
is largely calcareous which affords the sink
idea. The Fox Hills is porous and the
water gets down through it carrying away
parts of the Fox Hills and therefore a sinking
of the ground. Of course all taken on the
Karamia Series are not sands but most
of them are fine.

In the afternoon about 30 of us
collected Fox Hills fossils. I gathered a few
of the larger forms. Trilobites are very
abundant. All the fossils occur in nodular
masses which when unweathered, are very hard
and blue in color. Otherwise their color is
brown and broken covered. Secured a
bryozoan and a coral among other things. Of
the latter Prof. Linnaeus gave me a good
example.

July 23 Sunday Camp

Camp of yesterday remains unbroken today. After breakfast drove over to the foot hills of the Medicine Bow Range and climbed to the peak. It is about a probably, 2000 feet above the plain. Here we found snow (about 10,000 ft above the sea) and had a grand view of the Laramie plains with St. James and Copper Creek visible in plain view. Other lakes, and smaller ones, could also be seen and in the far distance Laramie Peak stood up. Distance about 50 miles.

Laramie Plains is by no means a plain surface considerably cut up by gullies, holes, and rivers. It is a treeless tract but towards the mountains Copper Creek and Rock and bottoms are very green with small meadows and other trees. The mountains are thickly wooded.

with conifer; quaking aspen etc. Flower
and beautiful ones abound everywhere in
the vicinity of springs, creeks and rivers.

The mountains are made of crystalline
and eruptive rocks supposed to be of Algon-
Kian age.

I had a long talk with Prof Knight
and one of the remarkable things mentioned
in the report is the fact of the Cretaceous strata.
The Laramie is said to be 7000 feet

and a similar thickness in the
Foss Hills and Fort Pierre. The present
mountains are Post Cretaceous since they
break through the Cretaceous deposits.
This is the opinion of Prof Knight.

One more notable structure is the elevation of
the Medicine Lake & Laramie Plateau is a high level
area with rapid erosion and deposition in the
ravine now between the mountains. With the
introduction of the Laramie there was another
physical change beginning with a great conglomerate
and boulders as large as a man. This was

The leaves have been drifted to this place since all are in fragments. The more perfect leaves are in the surface sandstone.

The leaves in the main horizon are on a buff thin layered shale and are completely weathered one above another. ~~and that with their~~ imperfect condition and their abundance nothing of much value in the way of description can be secured.

The lignite bed in the lower four feet is a shewing black light material becoming more impure above. The following shale horizon is composed of a number of bands of bright yellow with brown streaks running along into the buff leaf horizon. This is followed by a seam of whitish more or less coarse sandstone, sometimes with small pebbles from 2 to 6 feet thick. This follows another browned bituminous layer about 3 feet thick with a pebbly cap of more or less coarse sandstone yellowish in color and often streaked by iron stains.

At 2 P.M. left Sutton creek and
a. d. - pitched camp on Rock Creek about
one mile from the new L.P. R.R. cut off
Distance about 6 miles from our way to this camp, on the last
few miles we came down the valley of
Rock creek. The valley is several miles
wide and on one side hard layers of
sandstone are seen on both sides of the
valley dipping in opposite directions! Rock
Creek therefore has cut its valley down
through the apex of the anticline with the
side dipping S.W. more S. Dip approx:
20° to 25°

After arriving in camp walked S.E.
up over the valley ridge from camp and
came across three outcrops of sandstone.
The first one is about 3/4 mile away and
shows out in big masses of iron-stained
sandstone. In this I noticed roots of a
very large *Incisuramus* and one of the

Prof. Peckman
men found a red sandstone. ^{system}
The next sandstone S.E.
is not fossiliferous followed by a third
which bears numerous small fossils along
^{with} oolites and dolomites. About $\frac{1}{3}$ mile
more S.E. there is a very prominent outcrop
which I will examine tomorrow.

Peck well shows clearly that a long
plane is involved. On each side of the
creek there is low bluff. The one on the
northern side most conspicuous and the
creek meandering through its alluvial
valley. On the lower terraces no alluvium
can be detected. At different times the
stream has cut down its bed ~~down~~ to
a stationary level when a large of level
looked down another ^{more} direct cut.

The next morning here again show the
evidence of it by the heavy sand and in
places the sandstone is pitted due to
sulfuric acid.

East Creek

Great west flood plain

July 25-1899
Camp III.
Tuesday.

9500 feet



1 Thin ridges, and localities

2 Sandstone sandstone small scale. Containing localities, very large boulders, Datura, local in one other localities. Near Datura.

3 A thin layer of sandstone, the principal collection of 2.

4 Gypsum layer, 3 yards ~~30~~ 30 yards, wide.

5 Limestone layer. 29 yards, face thick.

6 Local sand layer 45 yards thick. (Quartzite layer, above the layer of the limestone, and is not well developed.)

7 A fine, ~~thin~~ sandstone, containing many limestone nodules. (The nodules are of the same size as the sandstone.)

8 A fine, soft sandstone. (The sandstone is of the same size as the sandstone.)

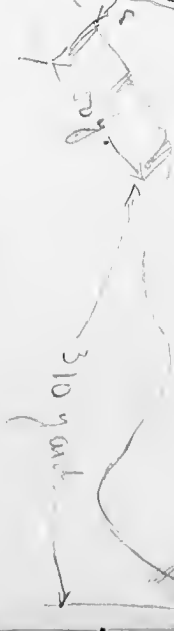
9 A fine, soft sandstone. (The sandstone is of the same size as the sandstone.)

From forward pass.



dip 20° S.
Strike E. & N.
Loc. 692.

Shape
Ridge with
Pine
"Pine Tree Ridge"



Loc 692-
dip 25° S.

July 25 - Tuesday. Camp. III.

Resumed work this morning on the same beds of late yesterday.

In the face of the creek bluff (locality 1) I noticed Locality 2.

Locality 2 is at the base of the most prominent sandstone ridge and contains oysters, large *Cyprina*?, *Cypraster*? known from Fayette Co., Pa. by Beck. Many species do not appear to be present. I have three specimens.

Locality 3 contains a number of small specimens. I have specimens.

Loc. 4 is a small *Strophomena* layer although there are many numerous gastropods. I have specimens. I have included a number of *Strophomena* in a ^{this form} *Strophomena*.

Loc 5 *Ammonites* layer. This region is very rich in fossils and has not only *Ammonites*, *Orthis*, *Strophomena*, *Strophomena* but also *Strophomena*, *Strophomena*, and another genus of *Strophomena*. Fine large gastropods occur here. Prof. Ben-ran had in luck found the great nodule and secured a fine collection. *Ammonites* occur & occur in the widely scattered ones at this & the

in contact with them include a number
of layers since they decay at once.

Loc. 6. In a distance of sixteen
feet the layers are nodular. Here Cardium
is the prominent fossils. In this zone a few
small. *Leptæna* near the top. *Proter. Lonsdalei*
and one by *Proter. Chautauqui*. It may be near the
zone which is also a nodular.
Pisidium common; see also the rest I have been
excavating.

Loc. 7. also above Loc. 6 is a thin
zone probably the same as the one just above
above zone of *Leptæna* and scattering
layers. Above of the latter a few of *Proter.*
Leptæna collected also from this distance.
This is the most important find of the day
and was made by *Proter. Brown* of Morgan-
town, W. Va.

Loc. 8 is quite a distance south of the
plant horizon and has numerous fragments of

oyster. Could see nothing of importance.

Loc. 9 is the most southern and here
make a vertical exposure. The layer here
are a very soft sandstone and sandy shale.
Back a mile south of the ridge ~~are~~ ^{is} a layer of
impure ^{red} ~~limestone~~ and a brown says is five
feet thick. Here various fossils found lower.
The best of which Collie of Detroit has a
large palm leaf, Sabal. Prof. Hamack
has others and tells me that he has seen
several species of *Crinifus*, *furoids*, *Platanus*,
Ticus, and *Sargassum*.

Prof. Dinit says that the ^{lower} horizon, or
mostly the fossils collected in debatable area
it is on or near the horizon of the Fort Pierre
and the hills. The latter he says continues
with here and then marine sand horizon
1/2 mile across the stream beyond my
station on Loc. 9. The Fort tells he says is
7000 feet thick.

A good collection was made by Andrew
Kempfer and will go to Gustavus Adolphus

At Peter Mamm. several large
lumps of the ammonite. One party saw
one of the same. Several and the
other 10 stones not dated by me. The lot
are for the G.

The bones of the American. layers wrapped
up in paper. belong to Prof Knight. Knollman
is a student. and returns some to Prof
Knight. (Later he asks only for a report)

July 25 Wednesday, Camp III.

Started out with the party to collect
before camp III and the 10th of a
bone from the track. Some bones
our workers got lost on the way. I
found Knight and when we found each
other it was for the first time. The
bones were all from the same.

The only thing I saw was a very

west of the Ridge
prominent nodular ridge with very large
on-crysmus, some of 18 inches in diameter.
The rock can be seen from here, near
St. Louis. For an, and again the same
was partially very and the same
effects very brilliant in fact more so than
I have ever seen.

One of the parts collected above in
the Fox Hills near Harper on the N.
R.R. which is said to be of a *Chelonic*
fossil is vertical, not concave, very
famous with all the successive animals.

Thursday Camp III.

Went on a drive this morning and
a very fine line was seen up.

Yours is a very pretty, my material
is the railroad. I have no
sail. I have added to the
of my, the line is backed.

We broke camp by nine and
started at ten. At noon we take lunch
at Thornton's ranch in the bottom of Pied.
Creek. There is a fine example of stream
meanders not less than 8 loops in a
half mile of meadow bottom. It rains
again quite heavily by one and near
five we have had snow and rain.

In approaching the highland before
we enter the Innessee country we see
flock after flock of antelope. They
are in herds of from 8 to 72. Thirty-one

own country by Van Norman and other say
so. He also saw two isolated Elk. A
Jack Rabbit and occasionally a coyote
come into view.

At six we camp just S. of the N. P. R. R.
station Aurora with Lake Como to the N. of the
R. R. and the Como Junction bluff to the
S. Distance from last camp about 17 miles by road.
While the creek appears sufficient for S.
to. Como Bluff and soon find Ammonites
and Belemnites.

Other members bring in Dinosaurian frag-
ments and one vertebra of *Leptocoelus*.

Lawson found the body chamber of the
Ammonite from the Fossil Butte sent to
Stanley Smith.

Collected a lot of fossil Gastropods like shells
associated with Ammonites. These are in the
Bakken formation.

July 28 Friday. Camp IV.

After breakfast spent the morning on
Long Bluff. Found fragments of Lingulid
traces in the Red beds and in the green shale
immediately above it nothing of value.

Collected some marine invertebrate fossils
which are quite rare and returned to camp.

In the afternoon drove westward to the
end of some shale when the white shales can be
seen very distinctly. Here the rock is about
100 feet thick. The beds are each about 10 feet
thick and dip at about 25° but nothing at about 60°. They
rested on a high level at the base of which is
the W.C. sh. At this station we also saw
the remains of the coral and the Corvina or
the Loma de la Cruz. Farther to the west is the rest
of the same and its numerous meanders. The
Sketches on the map show the anticline at
this station. We intended to photograph
this anticline and the surrounding country.

From the station at the end of the road

day of black Styrofoam a shade of nearly
6:1

When I returned to camp found that my
tent had been deluged and my bedding soaked.
Prof Knight brought in his bed and we slept
together.

I saw numerous places for the same reason
and would like to believe the cause of the
could be result is material. I saw a
specimen at the eastern end and turned it over to Kierke
who will stay to dry it out. Carter also found
a specimen in the sea beds, the largest horizon.

Aug 28 on my way to Sun River I saw again the
Congo Bluffs. To the east of Aurora station
several miles one sees mostly the Ft Barton and the
Atlantostaurus rife. Layers to appear in a very low
 bluff. In one place westward along the railroad
the strata rises higher and forms the "Congo Bluffs"
and lower we have strata in the hills
more than a distance. The track road road cuts
through the anticline and reveals the strata much
as shown in several diagrams. The area continues to
the west a B.N. of Medicine mts.

July 21-09

Can. ad.
Halle.
H. Benton?
in line, up

Sal. 1-1-10

————— fault

3.

1. same run out

at 600 ft

(1-1-10)

ad. in fine line

Come Well again
Small lake

into
Pine Lake
Lansan
Kriem

Belenite
min
dark sand to
then reddish

Discoloration

dark sand



Dark sandstone

Dip

on face

U. 1 H. 5.

~~Quartzite~~
[Quartzite]
Lansan
Kriem
Pine Lake
Belenite
min
dark sand to
then reddish
Discoloration
dark sand
Dip
on face
Dark sandstone
U. 1 H. 5.

24-9-19

350-210 Air

9226

Dr. Smith

17

1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$. It is shown that the solutions of the system (1) are bounded and tend to zero as $t \rightarrow \infty$ if the matrix A is stable. The second part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not stable. It is shown that the solutions of the system (1) are unbounded and tend to infinity as $t \rightarrow \infty$ if the matrix A is not stable.

1891

tail road N.P.

Coastal
July 29-99
Cannon Bluff

Red sandstone and sand shale 20 feet.
Caped by white sandstone

Red beds
Estimated shale 15 to 20 feet.

Whitest heavy coarse ss. cross bedded with
about 20 feet

Red shale 5-7 feet

White, sandstone shale 10 feet

Red shale 3 feet

Thin coarse ss 2 ft

Red shale 4 ft

Thin ss + sh. changes into the typical ship coarse ss. 22 ft
Slightly clayey limestone at top. 3 End of series.

Greenish to buff sandy shale. Limestone thin 1/2 in.
Hues for many valleys 20 ft.
Limestone - ammonite hor. thin.

Buff coarse heavy bedded ss. about 10 feet,
Limestone.

Buff, red, single shale. Limestone thin 1/2 in. out.
Thin coarse ss. 2 ft.

Limestone.

Thin coarse ss. 5 ft.

Soft red to greenish sandy shale about 10 ft (Cannon Bluff).
Thin Limestone layers.

White to buff ss. 15 feet.

Greenish shale with bands of brownish limestone
Oryzomys fossils concentrated. 20 ft.
The limestone comes from area of ...

Ship about 1/2 mile north.

Greenish massive
Cannon Bluff.

See ...

No.

over

July 29-99

Shelburne ss

Thompson's
Red soil below
with mud grain.
Other may also
be shales

Shelburne ss

Buff shale can't
Red & ashstone

60-70 feet

Shelburne ss

also red, sandy
buff shale with
green. As buff shale is in
the doler. Tonalite the tip then sand
appears interbedded by the
shale.

Shelburne ss is more in the
N. side. South side is
more of the same
but with more dolerite
45-

July 29-99

July 29-99 Saturday. Camp IV.

Setup at 6 A.M. and after breakfast made
the section of the eastern end of Corner Bluff

Broke camp at noon and at 11.45
arrived at Medicine Lake on the U.P. R.R.
After taking over the baggage and its beer
saloons and emptying boxes drove a mile to
the Medicine Lake River where we had lunch
At half past one started for our night's camp.
Prof. Knight and I go back to station to
adjust tickets for the returning party and in
less than half an hour we had gone on
the wrong train. After looking around we
saw how we saw Knight riding 3 or 4 miles
away ^{riding} in an opposite direction. One of our
horses was hitched here and there we
went to the "Nine miles" on the north
Med. Lake, some miles from Medicine Lake.

On our way ^{and west to} to the river and on our way one of
Astoria's boys, with his father's stick.

My observations at Corner Bluff show that
the strata here are somewhat and con-

ions from the ^{at the same time} and is
about 106-113 feet ⁱⁿ the marine passage
170 ft; the first water passage 120-150
feet and the second 40. The
bottom of the passage is ^{the}
and will track to the top of the Bluff
in 106-113 feet. Estimated average in near
farming with Broadhead's mineral water
I see no reason for assuming that the
bottom of the passage is ^{the}
says he found in the ^{the}
marine water. If this is true then the
bottom of the passage is ^{the}
of the passage. The absence of a main
passage in the rock in the ^{the}
the first water passage. In if the first passage
is ^{the}

After leaving the river
and coming over to the Bluff another anti-
cipation was also ^{the} but no
good as yet. I have taken

Two photos which may help to show this structure.
This region is a splendid one for structural
geology and splendid models can be made of it
for school purpose. Talk to Holmes of this.

July 30-99 Sunday Camp V and VI

After breakfast walked over the Jurassic Hills near Camp on the Little Medicine, at Horse Mile Crossing. The coral like thing I secured came from the top of the main limestone just underneath the ^{horizontal} limestone. Belemnites came in a little lower and below the main Belemnite horizon secured the telegraph.

The section here is the same succession as at Cane only that the beds occur in two hills fairly unlike the exposure more westerly.

He broke camp at 9.30 A.M.
Arrived at the north-western end of the Tuzigoot Mt. beside a good spring by 2.30 P.M., $\frac{1}{2}$
miles of road from "New Trail crossing"

After lunch started up the hill again

Section of Tennessean. Camp VI. July 30. 1869.

Topography
S.S.
Tennessee.

40.

25 ft
mass

25 ft
mass

30 ft

25 ft

25 ft

25 ft

25 ft

25 ft

25 ft

fracture

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

mass

(85)

and concrete
Ditch 20-75 feet across.

350
350

Most was
on the ground

(115)

3 ft.

15 ft

70 ft.

(110)

(90)

On the ground
which occur in some
small.

There is a pocket of oil and water
discovered at the 115 ft. level. It is
of varying depth and is at the
55 ft. level.

7
6
30
20
40
100
20
278 ft
in all.

Ship Lane is in
N E ? so with

See 9/1/00

the oil is in the
bottom of the hole.
It is not a pocket of
oil but a pocket of
water. It is not a
pocket of oil but a
pocket of water.

... the Dakota conglomerate. After
passing over the crest about 1000 yds into a valley
which ~~is~~ has the glacial region and
on the other side the Dakota conglomerate is
the continuation of the beds. Instead of the Freeze
Quit Mt. passed down the valley, north and
west of the glacier valley westward. Here my
attention was attracted to large masses of sand-
stone. I then concluded to climb the
ridge by the valley and made the
section on the reverse page. I was greatly
surprised to see that here the ^{upper} glacial
region instead of the glacial thought in at-
least offset by heavy bedded sandstones.

Here an ~~exposed~~ the marine horizon
of the rocks. The two points, at least
are still in the surface on this horizon. The
thinness are appearing to be the same as at
Point Bluff. The character of the rocks and
bedding the so called fresh water
deposits are different.

July 31-99. Monday. Camp VI.

Started out on Tugge But Mt with Loran and Cornice. Revisited my section of yesterday, on the ^{low} slope of the dome beneath Tugge But Mt, and ^{in the Red Hills} collected a number of small fossils. These form the rim of the Amphitheater. These are the ^{same} as the ^{ones} in the ^{area} ^{of the} ^{Amphitheater}.

Sitting on the slope and looking North to Tugge But Mt one can see the strata arching from the north, east and west. Along the ^{and north} ^{junction of the} ^{of the} ^{domes} ^{is} ⁱⁿ ^{large part} ^{of a} ^{other} ^{kind} ^{sandstone} ^{is} ^{on} ^{the} ^{eastern} ^{sides} ^{there} ^{is} ^{no} ^{sandstone} ⁱⁿ ^{this} ^{zone}. The distance across from east to west cannot be more than four miles and yet there is this grand arch.

All that I have seen serves to me that the ^{domes} ^{is} ^{not} ^a ^{fresh} ^{water} ^{or} ⁱⁿ. It lies conformable upon a marine ^{and} ^{conformable} beneath the ^{diabols} ^{which} ^{is} ^{built} ^(continues 2 pages over)

The section and the one below it are
 along a fault which runs from Treece Creek N.E. south-
 ward.

Variegated beds green and red
 shales mainly red.
 Run to Camp Point water.

7475 Con.
 Sandy limestone with
 fossil corals etc.
 7 to 8 feet thick
 Big beds ss. & sh.

7100 Con.

*

Truly rounded, Red beds seen in place

4.6 N.E. 160° clin. This is same in the center
 Yellow green of 8 feet. { Red cliff.

The dip is 10° to 15°
 to the N.E. in the center
 of the fault zone.

7075 Con. S. 10° to 15°
 dip to N.E.

4.6° N.E.
 7000 Con.

Red only Red only Red only

* Below the Triassic rim capped by limestone
there is a very wide and long valley probably not
less than two miles to the gulch at the base
of the high hill or mountain. The thickness
of the Triassic beds in the valley amphitheater
may be considerable since as one
passes southward one rises and finds ever more
small ~~sediments~~ ^{sediments} ~~Triassic~~ ^{Triassic} shales & sandstones. The thickness may be not less than

— The dip of the strata in the valley
then continues up over a very high hill or
high of not higher than Fregeant Mt. I
could find no place on this Mt. as young
low strata than those in the gulch but
undoubtedly on lower low side possibly
Paleogene rocks can be seen.

I have found a red soil here along the
western side of the valley at least 1000 feet of a coarse
sandstone with a thick limestone below. This series
may represent Carboniferous.

(Continued on 2 page back)

sage contains a marine vertebra. The nature
of the sediments, ~~and~~ particularly the changing
conditions, the whitest sandstone is evidence
of littoral marine deposits. The dinosaurs
are found sometimes as if mixed and again
but fragments of bones, broken sections occur.
Entire skeletons or nearly whole are rare. - one
of the bones show gnawing. The only evidence in
fact is the same. The absence of marine
life but fresh water life is also wanting. On the
other ^{side} if we hold these to be lake beds we
must admit a lake encroaching on the sea
followed by another littoral sea deposit. The
latter is more admissible but the former con-
firms the latter.

Returned to Camp by fire carry trail
today about 14 miles.

I understand from the following
articles written by the same author for
Dinosaur. Osborne and New Mexico Crossing.

Knights, Hillister and Field chambers in the
Freze but Hills and the Carnegie people
in this vicinity. Five parties.

August 1-99 Tuesday. Camp, VI.

After breakfast started south to the Freze
in the Freze but Hills to Knights, Hig-
ins. Collected all the morning in the
Marine Jurassic.

In the late afternoon collected near the
top of the *Oriskany* beds at a locality
disclosed by Knight and ^{Barbour} Barton. In
these strata (6 inches) yielded, fresh water
shells, 2 species of *Ammonoites*, 1 *clunaticus*, 1
Physa, and possibly a fragment of *Criocollites*.
This is an important discovery since the
beds are all the same age. Some
marginal deposits. Collected a number
of *Ammonoites*. Mr. Barton will work
out the fauna.

A number of the party local for

Ammonites. - one and the other
seemed one, and one and 3 smaller ones!
I believe the small ones are correct.

A number of fragmentary ammonite
bones.

Prof. Smith has 3 claims in the
region here, which shows bones 1000 ft. in
length. His main claim is said to be 5^{1/2}
feet wide. He has not found the year
more than 2000. I don't believe there
will be sufficient to locate bone localities
but possibly the best arrangement will be
to go southward with Smith. He
offers not more than 50-1000 dollars
per year. The bones when taken out of the
ground are spartally cleaned but require
patience together. The expense to secure
a good ammonite collection need not
be excessive.

Saw Martin today of Villiston's party.

He tells me he found 22 Cretaceous birds this morning. Williston is to have first pick and then Martin is to write us. Ben Cynoid shot in in Burlington.

There is every appearance that all the beds of the Trench Out Hills are of very shallow water since many of the beds are ripple marked. Such have been seen many in the R.C. beds where the limestone is also ripple. Same have been seen in the Algonquin horizon.

The transition from the marine base to fresh water here is a gradual one and is not dissimilar from those before. I cannot believe there was a lake but rather an arm of the sea which was filled up and became a fresh water moraine due to stream beds flowing from a high land. With the introduction of the Dakota there was a physical change and introduction of marine conditions which prevailed through to the top of a marine terrace when it was closed off of this region.

August 11. In my section of an
 Tange Cut Mt. measured with aneroid
 g. The thickness. 1500

Water ss. about 75 feet

Can not see so this is pure sand. May
 be a little thicker than in gins.

Green shales with 2 layers of limestone
 Each with shales in between
 Last one one foot thick. 85 feet.

Thin bedded sandstone 280 15 "

Massive white ss. 160 "

Sandy grey to buff shales 20 "

Light grey shales & ss. with nodules 30 "

Grey shales. Limestone. 40 "

Massive white ss. 110 "

Grey thin bedded ss. 30 "

Light grey wavy bedded shales 70 "

and ss. 70 "

Triassic limestone with fossils. 8 "

and lithology.

in the section for previous page

fresh water
 Deposits

marine layer

Aug 2-94 Wednesday Camp VI & VII
Broke camp and left Frege but not by
9.30.

Stop at Lawrence's works of fossils.

Hambrell, Todd, Carlson and Culbertson
left for home.

During the afternoon we found another
uplift of Two-Trias in which the Triassic rocks
formed cliffs 100-200 feet high. The
structure here is about as at Frege but not.
The rocks are of the same. We are 40 Mi. from
Frege now.

By 5.30 we camp at Sullivan's Ranch
in which we saw many high hills of granite
and paleozoic rock.

As soon as camp is pitched I started
on the hills and found them rather away from
each other. The structure is the same
as before. A rapid run of 12 miles
revealed a number of strata which I took to
be Cambrian and the Paleozoic strata. A
fault cutting off the Two-Trias

It rained all the during our preparatory
process and also during the night.

On 3-9-92 Tuesday, Camp VII & VIII
It rains again this morning and we cannot
get away before afternoon. It rains most
of the morning so I set out to see the
geology. After lunch in the rain it
is plain that the succession here is the
same as that of the Frege Out Hills or
that the strata are more abruptly upturned and
the section somewhat lower.

Collected a number of fossils from the
Triassic limestone which may be called the
Frege Out limestone.

At dinner one of the young men shows me
Cark fossils which mark his presence.
He is a biologist. He has a
Centronatus large var., P. dentatus small corals and

most in limestone. The whole of the limestone is covered by a thin layer of sandstone. The sandstone is very fine and is covered by a thin layer of sandstone.

Leminola.

Our camp is pitched near the base of Shirley Mts at Sullivan's Ranch. Just back of camp about $1\frac{1}{2}$ miles is Saw-tooth gulch takes its name from the Mountain having a sandstone ridge which gives it a saw tooth edge or serrated. Shirley basin includes one the low land between the Perm. Trias Mt. on the one side and Tertiary on the other. Above the Tertiary plane one sees a flat topped Mt. locally known as Chalk Mt.

Mr. Sullivan says Treey Oak Mt. takes its name from the time when it was covered through here. He camped during the winter in this Mt. and there lost some of his men by frost.

On Sunday morning we left at 7 P.M. and arrived at the base of the Shirley Mts. at 7 P.M.

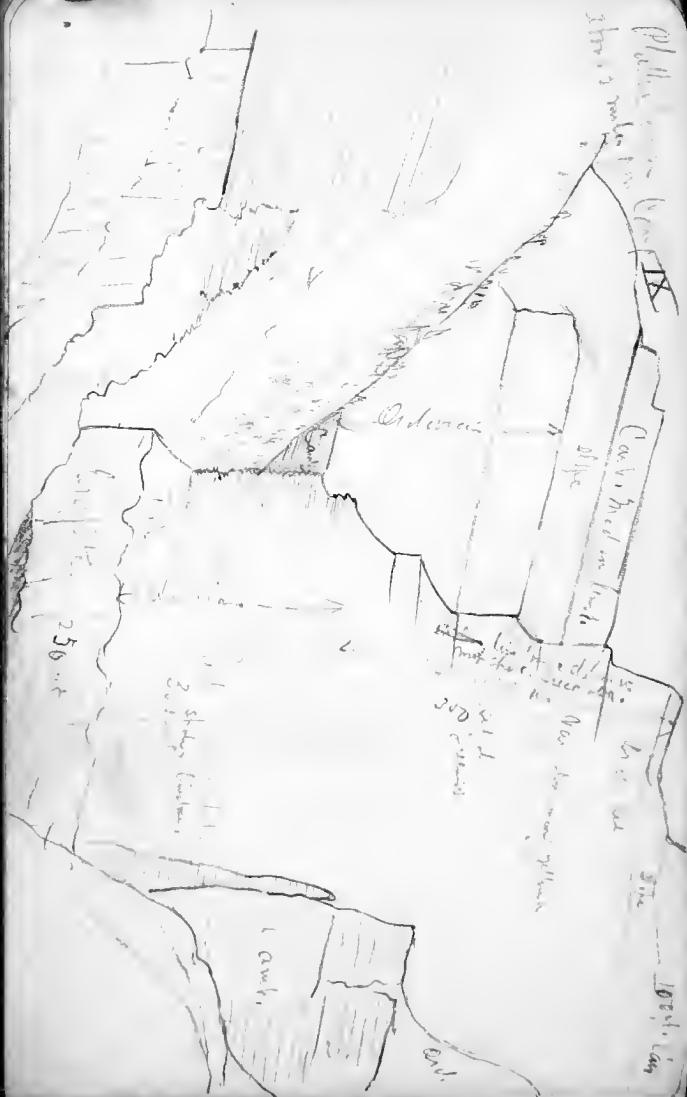
This afternoon we hiked along the Shirley Mts. passing the base of the Triassic ~~and~~ the Madison limestone and then the granite. After seeing out of Shirley basin we come on

To the limit of the ...

The morning by 8:30 after a heavy dew and fog we have following the creek for about five miles. All of their length the sage hens are very abundant and every body is out with the gun. Results about 100 chickens. They are very tame and often two or three shots will be made before it flies.

We then cross the higher land and by noon through granite Mts; the Indian Lake Mts where we have lunch. Here another heavy fog overtakes us and by 2 P.M. we start for the Little Bannock where we arrive by 5:30.

After having our noon-day lunch place we pass around the granite hills and up a ridge onto the highest part of the strata. Here we have a good view of the granite hills and in the distance, ~~the~~ ^{to the north} Ferris Mts. Passing on we find we eventually descend and soon find we are on a lower ridge of hills. They are all very much more on the south side. The landscape is very picturesque and beautiful.



May 2nd IX
 From a high hill of Tertiary.

Stare from photo of this. See if
 they are kept out.

Continuation.

Tris. line
 folded recumbent.

Stare
 Stare

Stare
 Stare

Stare
 Stare

Stare
 Stare

Stare

Stare

N.B.

Car. road.

Stare

Stare

Aug 5 - 4.

Cam, IX.

Part of the trip led us over the high mountains
and the river about 2 1/2 miles. I started
the trip over the Tertiary and soon reached
the high mountains of the River Tertiary of which
I took a picture to show some of the. Passing
over 2 or 3 small hills we reached a dry creek
which terminates into a canon and then to
our view a splendid view of the narrow canon
of the Plateau above 1000 feet high. One section is
above the Cambrian on ridges of Ordovician rocks
see sketch.

The granite in the bottom of the quarry is a
continuous mass and is ^{The granite gives it a columnar structure} a red granite. The
stone is a thick series of thin beds of red, brick
red,umber and shaly. Over this are apparent
conformable is a thick series of yellowish and red
limestone and dolomite with seams of chert. Towards
the top is a bed of light bluish limestone
appears in which many collectors have found no
fossils. Towards the base is the yellowish dolomite
the thickness of which is about 10 feet.

the top of the hills of light colored limestone
offered in which Dr. [unclear] has found
made the [unclear] second species of [unclear].

Over the Ordovician are possibly unconformably
lies the Carboniferous limestone of Madison age.
This is all that can be seen in the Canon at the
point of observation.

On the way back to camp I ascended one of
the best Tertiary hills and looked back towards
the Canon. This view shows a regular succession
beginning on the left with the granites and passing
to the right through Cambrian, Ordovician, Carboniferous,
Triassic, Jurassic, and some Cretaceous. All of these
strata have a nearly uniform dip to the
right and are overlain within the gorge
and in the distance by Tertiary Lake deposits.
I have sketched this view and have photos as
seen from a high Tertiary hill between camp and
the Canon.

In the evening I [unclear] as our com-
pass. Mr. Lawson tells me the granite has [unclear]
up a [unclear] a place and shows no decomposition.
It had never [unclear] of all its decomposition
[unclear]. Over the [unclear] [unclear] [unclear] [unclear]
[unclear] [unclear] [unclear] [unclear] [unclear] [unclear]

the 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841

Aug. 6 - 99 Sunday Pamp. ~~IX~~.

At the break out the (ravines) took us to the
Little canon of the North Platte about 6 miles by
road from the mouth. Here a hill 400 feet
high is thrown up with the strike east and
west. The river has cut a narrow gorge 400 ft
deep in about 200 feet ^{gorges} to the North.
exposing about 200 feet of white to yellowish sand.
It was apparently older than the last.

101th

Dr. E. C. Smith, his Dr. 400 feet
The measurements of first water.

July 11

Distances

Oct 10 1892

Ind.

10

65-5710

Gardiner's

Path

Elm, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 149th, 150th, 151st, 152nd, 153rd, 154th, 155th, 156th, 157th, 158th, 159th, 160th, 161st, 162nd, 163rd, 164th, 165th, 166th, 167th, 168th, 169th, 170th, 171st, 172nd, 173rd, 174th, 175th, 176th, 177th, 178th, 179th, 180th, 181st, 182nd, 183rd, 184th, 185th, 186th, 187th, 188th, 189th, 190th, 191st, 192nd, 193rd, 194th, 195th, 196th, 197th, 198th, 199th, 200th, 201st, 202nd, 203rd, 204th, 205th, 206th, 207th, 208th, 209th, 210th, 211st, 212nd, 213th, 214th, 215th, 216th, 217th, 218th, 219th, 220th, 221st, 222nd, 223rd, 224th, 225th, 226th, 227th, 228th, 229th, 230th, 231st, 232nd, 233rd, 234th, 235th, 236th, 237th, 238th, 239th, 240th, 241st, 242nd, 243rd, 244th, 245th, 246th, 247th, 248th, 249th, 250th, 251st, 252nd, 253rd, 254th, 255th, 256th, 257th, 258th, 259th, 260th, 261st, 262nd, 263rd, 264th, 265th, 266th, 267th, 268th, 269th, 270th, 271st, 272nd, 273rd, 274th, 275th, 276th, 277th, 278th, 279th, 280th, 281st, 282nd, 283rd, 284th, 285th, 286th, 287th, 288th, 289th, 290th, 291st, 292nd, 293rd, 294th, 295th, 296th, 297th, 298th, 299th, 300th, 301st, 302nd, 303rd, 304th, 305th, 306th, 307th, 308th, 309th, 310th, 311st, 312nd, 313th, 314th, 315th, 316th, 317th, 318th, 319th, 320th, 321st, 322nd, 323rd, 324th, 325th, 326th, 327th, 328th, 329th, 330th, 331st, 332nd, 333rd, 334th, 335th, 336th, 337th, 338th, 339th, 340th, 341st, 342nd, 343rd, 344th, 345th, 346th, 347th, 348th, 349th, 350th, 351st, 352nd, 353rd, 354th, 355th, 356th, 357th, 358th, 359th, 360th, 361st, 362nd, 363rd, 364th, 365th, 366th, 367th, 368th, 369th, 370th, 371st, 372nd, 373rd, 374th, 375th, 376th, 377th, 378th, 379th, 380th, 381st, 382nd, 383rd, 384th, 385th, 386th, 387th, 388th, 389th, 390th, 391st, 392nd, 393rd, 394th, 395th, 396th, 397th, 398th, 399th, 400th, 401st, 402nd, 403rd, 404th, 405th, 406th, 407th, 408th, 409th, 410th, 411st, 412nd, 413th, 414th, 415th, 416th, 417th, 418th, 419th, 420th, 421st, 422nd, 423rd, 424th, 425th, 426th, 427th, 428th, 429th, 430th, 431st, 432nd, 433rd, 434th, 435th, 436th, 437th, 438th, 439th, 440th, 441st, 442nd, 443rd, 444th, 445th, 446th, 447th, 448th, 449th, 450th, 451st, 452nd, 453rd, 454th, 455th, 456th, 457th, 458th, 459th, 460th, 461st, 462nd, 463rd, 464th, 465th, 466th, 467th, 468th, 469th, 470th, 471st, 472nd, 473rd, 474th, 475th, 476th, 477th, 478th, 479th, 480th, 481st, 482nd, 483rd, 484th, 485th, 486th, 487th, 488th, 489th, 490th, 491st, 492nd, 493rd, 494th, 495th, 496th, 497th, 498th, 499th, 500th, 501st, 502nd, 503rd, 504th, 505th, 506th, 507th, 508th, 509th, 510th, 511st, 512nd, 513th, 514th, 515th, 516th, 517th, 518th, 519th, 520th, 521st, 522nd, 523rd, 524th, 525th, 526th, 527th, 528th, 529th, 530th, 531st, 532nd, 533rd, 534th, 535th, 536th, 537th, 538th, 539th, 540th, 541st, 542nd, 543rd, 544th, 545th, 546th, 547th, 548th, 549th, 550th, 551st, 552nd, 553rd, 554th, 555th, 556th, 557th, 558th, 559th, 560th, 561st, 562nd, 563rd, 564th, 565th, 566th, 567th, 568th, 569th, 570th, 571st, 572nd, 573rd, 574th, 575th, 576th, 577th, 578th, 579th, 580th, 581st, 582nd, 583rd, 584th, 585th, 586th, 587th, 588th, 589th, 590th, 591st, 592nd, 593rd, 594th, 595th, 596th, 597th, 598th, 599th, 600th, 601st, 602nd, 603rd, 604th, 605th, 606th, 607th, 608th, 609th, 610th, 611st, 612nd, 613th, 614th, 615th, 616th, 617th, 618th, 619th, 620th, 621st, 622nd, 623rd, 624th, 625th, 626th, 627th, 628th, 629th, 630th, 631st, 632nd, 633rd, 634th, 635th, 636th, 637th, 638th, 639th, 640th, 641st, 642nd, 643rd, 644th, 645th, 646th, 647th, 648th, 649th, 650th, 651st, 652nd, 653rd, 654th, 655th, 656th, 657th, 658th, 659th, 660th, 661st, 662nd, 663rd, 664th, 665th, 666th, 667th, 668th, 669th, 670th, 671st, 672nd, 673rd, 674th, 675th, 676th, 677th, 678th, 679th, 680th, 681st, 682nd, 683rd, 684th, 685th, 686th, 687th, 688th, 689th, 690th, 691st, 692nd, 693rd, 694th, 695th, 696th, 697th, 698th, 699th, 700th, 701st, 702nd, 703rd, 704th, 705th, 706th, 707th, 708th, 709th,

 $\sqrt{2}$

Greenfield, N.H.

Good looking, 18
with dark hair

White 2.

10

Thank

[illegible]

5010

Platt

1870

The general structure of the region is shown in the two previous sketches. Near the middle of the Canon there is a hot spring in which a very green alga is growing.

Aug. - 99 windy Camp. IX.



Entrance of well known,
Tribes in slight displacement. See
below. Red bed.

2000

2, 2, 2, 2

June 1898

my dear children

[illegible]

家

1891

Wm. L. ...

Friday, May

Don't want to
on 1260.

Shred down 25 x 15. 1 1/2
after 20 pages.

Feb. 28, 1900
San Francisco
Calif.

in the case of the
of the case of the

May 90
Don 5.325
John Tuck & Co
A712

Aug 7-95

all add to the same amount

Genes

Dieterich M. J. E.

Local of the village of
Black 500 m. away
but it was

Oct 10 - 270 ft

Shells

Don. 1740

Jan 10

cut on the top. No
cut very soft porous
Oolite. The same
1200 ft.
1500 ft.

[illegible]

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5575
D. C. A.
Jan. 17/10

at the top of the hill
 looking back over the valley
 the hills are very low
 and the country is mostly
 level.



To the east of the hill
 the country is level and there
 are no hills or mountains
 of any height.

There are some hills in the
 distance but they are very
 low and the country is
 mostly level.

At the base of the hill
 the country is level and
 there are no hills or
 mountains of any height.

2 mi. S.W. of
 the hill
 the country is level
 and there are no hills
 or mountains of any
 height.

Cont. 4975.
 2 mi. S.W. of
 the hill
 the country is level
 and there are no hills
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 height.

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Aug 7-99.

Along the eastern end of the hill ~~through out~~
~~the whole length of the hill~~ ^{from Little Co. trail 1/2 miles} in Little Co. one can see
the ^{Clinton} bed. and from ^{coming over the}
lower crest. Passing over to the S the same bed.
are seen to dip ^{suddenly from nearly horizontal} 70° ^{to the S.} and in the
distance the Clinton is seen dipping about $15-20^{\circ}$ N.
The overthrust fault is not marked at the
Little Co. end.

It is very low beneath the ridge but Lewis here
there must be at least 400 feet of Red Det. towards
the N. a much of thick greenish sandy
so appears and near the center - when the
foot of the ridge is seen.

The Clinton can be seen in the distance
of the Red Det. a N. S. line since it is the
only one seen. It is seen not quite along the line.

The Clinton is not very long in Little
Co. at the top of the ridge and is later on
the Trench at L. Co. No. 1. It is very short
one mile or so long, and S to there dipping
about $15-20^{\circ}$ N. through the arch.

First, we have to go to the top today.

Jan 1-1907. Section 1, Barnard Hill, N.Y.

1. 100 ft. of sandstone, mostly massive,
is covered with a thin layer of soil.

2. 100 ft. of sandstone, mostly massive,
is covered with a thin layer of soil.

100 ft. of sandstone,
mostly massive.

100 ft. of sandstone,
mostly massive.

100 ft. of sandstone,
mostly massive.

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100 ft. of sandstone,
mostly massive.

100 ft. of sandstone,
mostly massive.

100 ft. of sandstone,
mostly massive.

Aug 8-99 Tuesday. Camp IX.

Left early this morning for home. Our
company was reduced to nine.

Observed a well this morning locally known as
Barn Run. All the same.

At 9:30 AM started out with point in the
head of Grand Canyon of the North.

There is a well in the section today uninformative
on the same. Bar. 56.5 at base of section. Gravelly
material in the lower part with fairly uniform
a coarse ss. The section is a good one. The surface
of rock is irregular but the ^{the top of the section is} ^{the top of the section is} ^{the top of the section is}
rather a surface, not a good one. Last, **Camp. Bar 59.5** in

top a coarse ss. The top of the section is a good one.
The surface is a good one. The top of the section is a good one.

The section is a good one. The top of the section is a good one.
The section is a good one. The top of the section is a good one.

All above the section is a good one. The top of the section is a good one.

Reaching the top of the section at 6:00

one section is a good one. The top of the section is a good one.

~~A section is a good one. The top of the section is a good one.~~
The section is a good one. The top of the section is a good one.

(In a vast part of the world, an the better and the better)

Considering slope of the beam is not less than 260°
 in the beam is 280° .

I found things quite - his wife & children
at the Hotel. At the other place,
I saw some but none like a specimen, &

There is an unconformity between the Cambrian and the Silurian at the head of the Canon. There is a depth more than 260 feet of strata which when we saw the Canon lay out in the Canon is about 400 ft. The houses include ^{horizontally} ~~horizontal~~ ^{strata} ~~strata~~ since there at the base are the old part of the Cambrian (large fossils and a star trace) and Silurian.

At the outlet of the Harbor (Port) seems
to have been at the base of the ^{land} and for
one block there is no sign of it. At a little
distance the top of the sea is seen, the
land is rising, otherwise the beds are alike.

apparently conformable on Cambrian and on the next lies
to the east on Camb. Then S.E. it rests on the
granite. To the N.W. it lies in turn on the
Tinos, gray and Benton.

The White Tinos is irregular in deposition on
the red Camb. and is often strongly cross bedded.

The fossils, the so-called Cambrian are
very massive usually in lengths of about four inches
and one inch thick and high. They lay very thick
in the Creek.

One can estimate the thickness of the
above the Cambrian as 227 feet. The fossil is a Camara-
teria 47 feet above the sandstone. This species reminds
much of a Permian species. Another one had a
very thin shell. The red bed is only about thick and
long is at least 10 feet. This adds to the belief that
these sandstones introduce the Tinos.

Aug. - 25 Mon. m. Camp. IX.

Spent the morning & afternoon collecting
around some ponds in the hills west
and nearest to Little Canon. Found two
good ponds loaded with water birds.

The Ammonites occur near the top of the
main formation with the great majority of
fossils. These Ammonites at one time before
they drifted in this river.

Aug 10-99 Thursday Part II 88.

Descending from our camp at 6000 ft. to the
creek at 6300 ft. we again descend to the Indian Grove
Mts. at 6300. Take me on in the afternoon
take a last look back at the Grand Canyon country.
Far in the distance are the Asst and brown color of the
rocks and in the near foreground the hills are
full of many trees, red and white, green and blue.
The trees are very low and are in the
valley, and in the center of the valley.

In the valley are the Indian Grove Mts. and
on the north side of the valley. In the
valley are the trees and the hills are
full of cottonwood, the trees are
very low and are in the valley.
The trees are very low and are in the
valley, and in the center of the valley.

To the right of the valley is the
monument of William of Philadelphia
Penn. Born Sep. 12, 1751, murdered
by his guide Sep. 23, 1888. Inscription on
a granite cross to the man who was murdered

the next day the sun was out and the
of the night during the wind up to continue
but the sun was included in it. So during
the night the sun shined the best
of the horses were taken care of. When the
sides had been secured and when to be pro-
posed for the day the moment they smelt
the sun came out and they started out
when secured to take a walk that day.

Arriving at the top of the Testay hills we
are on the same side where a new
duped system is proposed. To me it is
an isolated scene reminding some of the hero.
The view is a scene of a
large open space the bottom is a series
of round dunes surrounding a temple like structure.
In a bowl a small lake has been eroded out
of variegated clay and surrounded by a thick forest
of sandalwood trees. In the center is a
large lake. The water is dark and mottled. The
temple is a small structure at the top of the dunes.
The view is a scene of a
large open space and we see a wonderful scene
of erosion. It looks like a thousand years

we were surrounded by the trees
and a small collection of people
and I went to the house to see what
was going on. The people were
all very friendly and I was
very much interested in the
things they were doing. I saw
many things that I had never
seen before. The people were
all very friendly and I was
very much interested in the
things they were doing. I saw
many things that I had never
seen before.

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that I had never seen before.
The people were all very friendly
and I was very much interested
in the things they were doing.
I saw many things that I had
never seen before.

As I was walking through the
forest I saw a small stream
and I went down to it. The
water was very clear and I
saw many fish. The people
were all very friendly and I
was very much interested in
the things they were doing. I
saw many things that I had
never seen before.

(one)
 175
 125
 250 Gr
 200 fwh
 250 N.S
 800

(Micae)
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 200
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du 13. März (am. XI.)

7325

are taking
on all the sections of the towers.

Grass
Slope 7.00

Above is nitrogen can be added 200 ft of sand,
also seen in the wells see next page

7250 *by* *the* *river*

Yellowish white soft
glaze in troughs.

Lower half with numerous
white bones and a large
animal bone 10/11

157/5

Red sandstone 10 ft. Further here.

Feeling more to

about late sept days weather
w/ + over.

Does she

12-1-1

7025

more about the ^{1st} found place by the collector
(and some notes). Found word was written 6975.

much sand. Sand, fine, in sandstone.

175 feet

The bank says not to be.

6800.00

50/61.

1000 lbs., and 660 Bar.

The Bi-granite and also the ^{orthopyroxene} ^{pyroxene} and has
formed the clays and redefines it in the same way
and the granite complement is even better.

Some of the days are very hot and the sun is very bright
with the sun complement in even brightness.

For detail as to the Cannon & Lakes Hole
County up to Boney Ernest Ferris, Ky. He
is in this county since 1860 and is now about
60 years old. Knight regards him reliable.

In the gulches along the inner side of the river
grow beautifully some White & Red Spruce (Picea
douglasii) 60 ft tall in 2 ft thick. A pine
is also abundant, Pinus murryana. The common
"sage brush" is Artemisia tridentata, the cotton-
woods we saw in the Grand ^{Canon} ^{near C. M.} ~~Cannon~~ County are
Populus eggeniata, & P. angustifolia. Both are
used in Cannon as shade trees. The common
Juniper we saw so much in the Cannon county is
Juniperus communis alpina & J. virginica.
The red berried little bush amongst the sage brush
in the gulches here is Rhus trilobata. The quaking
asp we saw at Lullwater is Populus tremuloides
and the willow Salix rostrata. Along the small
streams alder is common (Alnus incana
virescens) and the mountain birch (Betula
glandulosa). Broom and
Croft cactuses.

1504-1505

The
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[illegible]

There are many small islands at the foot
of the main island. The distance to the
center of the island is about 10 miles.

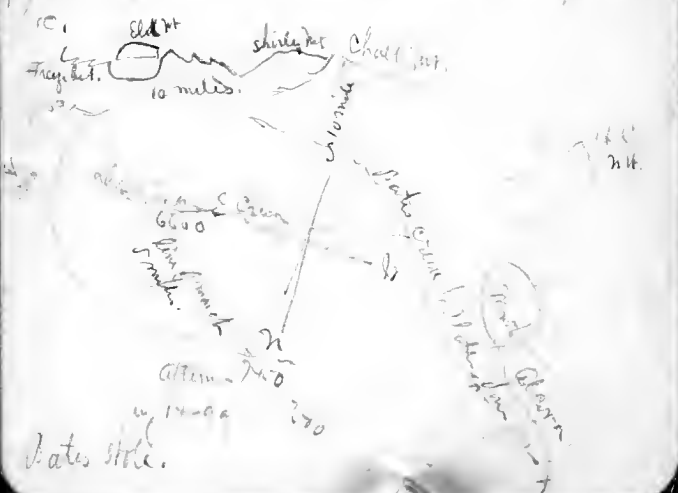
for the hole 205-28,000 years.

$$\begin{array}{r} 7160 \\ 330 \\ \hline 2 \end{array}$$

Aug. 14 Sunday. Camp XI.

Top of hill S.E. of camp - 4500 Bar. Titon, bed, 7300
base, slope near top of hill. Lowest level
reach 16000.

At afternoon place ~~7000 Bar with 200 feet~~ 17,
Limestone of 7600 about 10 feet thick. Following a
line in rock. Physa about one foot thick and then
encl. 3 feet dark clay & limestone. ⁷⁵⁰⁰ 7450
At the northern base, there seems here from 2000 to 2200
feet more of strata than in camp east of the



The two men ought say a line of levels
arrived at the same level and that the entire hole had
a depth of 17000 feet.

The road is very rough. It is very
very rough. The road is very rough. The
creek seen today is wonderful. In places there are
numerous ripples for ranges after another. Towering above on
a height from 400 to 500 feet. These between the
rattles are the bluish to white talus slopes studded with
silica or bones many of which have thin roots exposed
a part of it standing on stilts. Collected in the
mountainous region. Also some Physa and other fossils.

Aug. 5. Tuesday. XI & XII.

Left at 9.30 and camped. The country is
level. Last time down was 42 miles crossing. It is
now nearly at the end of the Tertiary. The Tertiary
(? Permian) is the same as the Laramie range.

At the camp we saw some of the old
cattle. The sheep are also. At the camp around
the range which is the same as the sheep are
cattle. Some little distance from the camp on a short walk
in a valley which is covered with all kinds of
shrubby plants. The plants are in the same

Dec
In the morning, went in the hills. Mr.
Hanson & the Laramie came across a herd of
antelope & shot 2. He saw the one
small and if he had had the assistance of the
other the entire herd could have been corralled. As it
was one of the small ones could not run as fast as the
other & was the one which made the horse was diving
a little in with this the head which all around
the eye.

It rained a good deal in the afternoon.

Aug 11 Thursday. Camp XIII.

Went about among the prairie hills and
found many of the native seeds a few specimens of
strawberry in quantity. Then collected a good
number of the seeds of the day. Found an orchid.

The hills about here are in places almost in-
soluble for getting water. A trust fire was here some
years ago and the young timber is starting again
particularly quaking aspen and cottonwood.

Rained again in the evening.

Aug 18 Friday, Camp. XIII & XIV.

Started in the Little ^{more the John Burnett} Mojave River where we arrived about 10 M. on the old Ogden Ranch.

Collected plants in the afternoon.

The hills near our camp have a very coarse conglomerate of granite derived from the granite hills a very short distance away. In this congl. are very much broken bones of Titanotherium. The old Miocene shore line with the beach shown with granite fragments, derived from the hills against which backed the sea.

Aug 19 Saturday, Camp. XV.

This morning we started out for "Specimen Hill" about 2 miles N.E. of camp. In some places these hills are covered with coarse gravels which the Red River washed to expose air flints, and also numerous shaly, and are occasional rough shale. Even on these hills are found numerous beautiful calcareous or quartz, rocks or rather units along with much magnesia and more quartz. Indeed Jasper also. All the unlabeled specimens are from this hill. On these hills I found Semina subtilis Euomphalus, Myalina and

Am to save *Strophomena* and *Trilobites* etc.
Strophomena *cameratus*. The age of these hills is
Tertiary or Carboniferous.

These hills lie at the base of the Laramie
granitic hills and both may be covered by the
Tertiary. I have no doubts that the moss of the
hills are found in the Tertiary near here as further
west derived from the Carboniferous.

In the afternoon I went to the "Red Hills" N.W.
about 3 miles from camp. Here we also found
calcedonic stelaetites but more finger shaped.
He saw no fossils but I have no doubts that
these stelaet hills lie above the Upper Carboni-
ferous and may be either Permian or Tertiary.
The inference is based on the dip of the Carb seen
in the morning.

Collected about 40 pounds of minerals today.

Aug 20 Sunday. Camp. XIV.

Packed the material collected yesterday into four sacks.

Wrote letters to Mrs. & Mrs. Stanton, Merrill Hills and Alhambra.

Duncan brought in a sage trunk about 3 in. in diameter and showed 58 rings. This is by no means the largest example. Another ordinary sized trunk had 38 rings, having a diameter of 1 1/2 in.

From our camp in the back yard of John Burnett's Ranch we can see in the southwest the Shirley Mts. and distinctly the Saw Tooth Mts. near Lullwater Ranch.

Aug 21 Monday. Camp XIV & XV

Very fine a busy packing - a much collected.

About 11:30 a.m. we left a John Burnett to take to the field house in the field house.

We leave at 6 P.M. Have dinner at Sheep Creek by 1:30. Start again at 2:45 and camp for the night south of Teller near Mr. Gillespie's Ranch.

We are now on the west and south of
the Laramie granite hills above the Tertiary
and Tertiary, and then the Tertiary.
At Ship Rock the Tertiary red beds are present
in low wash cuts for some miles around. The beds
are streaked in all directions by gypsum and
secondary deposits. An ore near again the granite
hills the Tertiary.

Aug 22 - Tuesday Camp XV & XVI.

As we retired last night the atmosphere was
warm and rainy. At the end of the road
and this morning it is cool and windy. We leave
Camp 8 and reach Ship Rock ^(about 2 and 1/2 miles) near Eagle
and arrive there by 12.30. Our camp is
scattered along a narrow valley surrounded
by granite and an abundance of pines. A
hand house was once situated here but now
nothing is left.

In the morning we visit Cameron
and see plants first on the higher slopes

ground and then along the small streams. Worked
late breezy parts.

All the rocks of this region is a granite like
that of the Indian Lake Mts. A red granite
is also visible. The granite is cut by numerous
dikes of dark rock. Of the latter I have samples.

Aug 23 - 99 Wednesday Camp. XVI.

The night was a cold one, and ~~this morning~~
~~our water was covered with ice 3 inches thick.~~

At 8 A.M. we all started out to climb Laramie
Peak. The elevation of our camp coming and going is
6900 ft. Bar. At the barren dam at the base of
Laramie Peak in the great stream the elevation is
7300. We selected a place on the west side of the peak
over a dike that we had cut out with granite walls
in the middle of the ridge. I found it very hard climbing and ascended to 8675.
Cameron who was with me ascended to 9075. ^{Actual height is 9020}
On our return to camp I learned that neither one of
us had seen near the top. Prof. Rose and
Trask did get to the top which was about one

mile or more where we found ascending. The
highest point of the mountain is about
10000 feet high. The mountain is about
2 miles above the town and is 1000 above the
River level.

On the top of the mountain we found
Mr. P. found inscribed in the rock the name
of Charles D. Smith, 1889. The name of R. H. Har-
ton was found which I wrote down. The
name of the mountain is the same as the
name of the mountain - a J. P. Smith, Jr.,
Des Moines, Iowa. Other names were Smith
and Smith.

We found the mountain very steep. It came
down to the river to the west which had no
trough in it and was very much altered.
The gravel had been over the river for
some time and was very much altered.
We found the mountain very steep. It came
down to the river to the west which had no
trough in it and was very much altered.
The gravel had been over the river for
some time and was very much altered.

which was found on a log through the village. This
was the ~~first~~ ~~one~~ ~~of~~ ~~the~~ ~~dogs~~ ~~then~~ ~~one~~ ~~of~~ ~~the~~ ~~dogs~~

from mile to walk to camp.

Every one reached camp safely today
Tuesday.

I did not intend to climb the Indian trail
and by an accident I had Ross' lunch which
consisted of biscuits and fruit. I was very
latter was not eaten as the food was very
fatty but otherwise the meat is delicious.

Aug 20-99 Tuesday. Camp XVI.

The night was very cold and one saw the
morning have ice & snow on it.

Immediately after breakfast I go down the
river stream from our camp about half mile to
the mouth of the beaver. There beaver
seem to be damming up more and more
down stream, to find good camping places. It
seem to be the best road. They cut down the
trees for an inch to three or 4 inches in diameter.
They are marked about 18 ^{inches} from the ground on all
sides of the trunk and the trees are in very

He came out from the Merrimack county in Maine.
He came to Laramie Park about 1875 and
had numerous encounters with the Sioux Indians
a number of whom he killed. He also met some
Laramie Indians and they were his enemies. He often
went hunting and had on a skin of one.
He mistook him for a predator. The Indians
saw him and were laughing at him. This is very
apparent since he appears to be almost laughing.
If I ever met a person in the same state
it would be one of the most in the
country.

We camp on the North Fork of the Laramie
River near Big Horn crossing about 12 miles from
Laramie Park. We arrived here about 12 noon.

In the afternoon we went some miles
west into the mountains and set out traps
on and had a few trap lines. In these
hills we collect antelope and prairie dogs.

Our collection is good.

Now this morning is a little better than
the second one we were not on the trip.

presided over by Messrs. Hollway and
Cornell and Cameron
After Lumbering in one
of our 8 profits. Her P.O. address is
Antelope Spring
Barrett's way of Rock
Creek

August 29 Friday. Camp XVI & XVII,
Left the North Fork of the Arkansas at 9 a.m.
and had lunch beside a small strong creek at
12 on the edge of the prairie. After leaving camp
we passed a red hill out of the mountain and
then came to a wide plain. After leaving the
Creek and the hills we saw one all the way
till the Teton.

The hills were all of a distance from the
range (XVII) in the prairie. The hills
are now by the banks of the Livingston
ranch. In the vicinity one also saw a very
expensive "Round top". The cattle were

will say. In this vicinity the cattle are very numerous and the cattle are

kept together in two large bunches into which the cow boys ride and pick out the desired cattle and drive it to a bunch forming between the other two bunches.

There is a well - 10' or so deep in the vicinity.

Our camp is at McCall's crossing of the Laramie. There is a creek and very little to distinguish the neighborhood of the Laramie. There are 2 or 3 miles on the camp and a small bridge for the R. P. R. it

Aug 26-99 Saturday Camp XXVII & XXVIII.

Wrote camp and left at 10 A.M. The first day I went to cross the Laramie River which was the way across without trouble except the one sign was. One of our horses balked and fell back several times in the water and the horse boy had to pull him over. Our first horse was a brown horse and he pulled over. By 10:30 A.M. the horses were all over and the men were going into the river.

About noon Mr. Don shot a badger and we had to stop him on his hole.

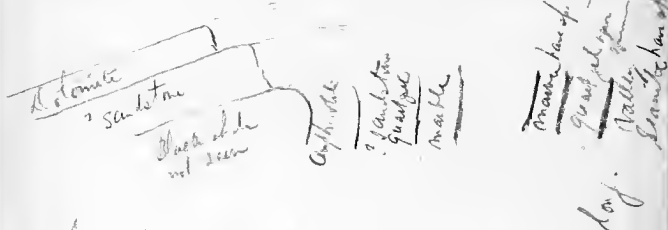
Our camp is situated on the road. Common near the road of the geologic. On the left side of the road we found a farm where we collected graphite, iron and granite. The graphite and iron is interbedded with the granite. The granite is also a bit of serpentine.

Continued north. To the left of the house about half mile. There we reached a granular white marble. It stands out by a great ^{to the east} of the road with other large granular ^{to the west} of the road. The marble has streaks of iron. To the west of the marble occur an amphibolite schist. Both also occur here. The age of the marble is not known but the occurrence of the rock is a good deal of the same kind. It is not too far from a granite. The granite is a fine, crystalline. There may also be some of the same kind of graphite in granite. It is a good deal of the same kind of granite here.

Aug 27-99 Sunday. Camp LXVIII.

We made our last camp and got away by 8 A.M. road lined on the Laramie Plains and arrived at Laramie by 3 P.M.

In coming down the Laramie Hills it seems plain to me that the Knights were that the marble collected yesterday is the metamorphosed Carboniferous dolomite. The structure seems to be about as follows:



I have specimens of the marble with serpentine and also of the dolomite which I suppose furnished the marble.

Rent a room at the Knights house and had a bath in a clean cloth and a wash. Spent the night at Knights house.



In the ...
 ...
 ...
 ...

On the Fregeast crater rim, looking N.E.
 at the

On the F.O. crater rim looking at the

 In the crater looking back to the
 red bluff and across to Frege
 Crater.

Eastern Bluff F.O.M. showing the
 S.E. end of Frege Crater, showing the

Peter

Ed

A good

